Usability Related Qualities through Sentiment Analysis

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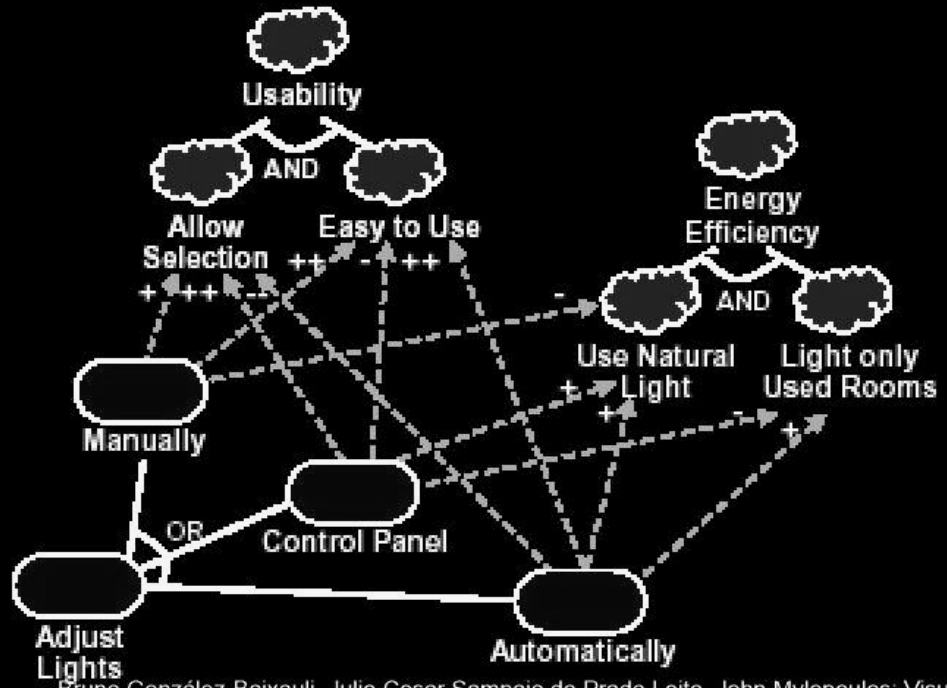
Problem

Qualities have antagonist relations of impact among them



Bruno González-Baixauli, Julio Cesar Sampaio do Prado Leite, John Mylopoulos: Visual Variability Analysis for Goal Models. RE 2004: 198-207

Problem

Qualities have antagonist relations of impact among them

"the trade-off between **usability** and **security** is not completely secure" [1]

[1] text taken from GitHub Issue https://github.com/wireapp/wire-ios/issues/877

Problem

Qualities have antagonist relations of impact among them

"the trade-off between **usability** and **security** is not completely secure" [1]

Through Sentiment Analisis

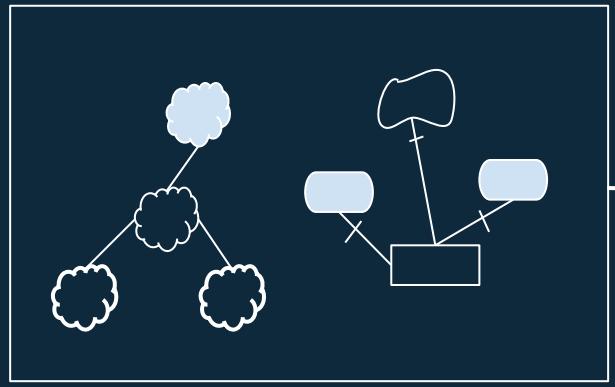
[1] text taken from a GitHub Issue https://github.com/wireapp/wire-ios/issues/877

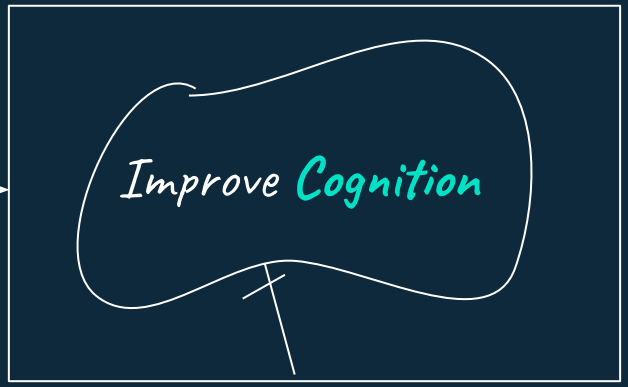
GitHub

Opportunity

To reuse content from GitHub through the finding of qualities, even with more precision by finding its *interdependencies*

Strategy





Usability knowledges bases
3 catalogues used*

Related qualities extraction
using part of speech tagger

*[2][3][4]

Strategy

Corpus of *Usability* *Issues* from GitHub

"...a number of factors external to EHRs may have considerable effects on *usability*, such as: regulatory requirements..."

Big data information
145 issues descriptions*

Identifying qualities in issues
using keyword in context

*[5]

Strategy

usability challenges will be defined as product features or situations in which the design and implementation of EHRs do not align with the *cognitive*

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Location of correlated qualities
adjacency of two words

Interdependencies among qualities
through sentiment analysis

Resuts

Usability Correlated Qualities on Github Issues *

Quality keywords	Correlation value
cognitive	0.95
timeliness	0.95
appropriate	0.92
accessibility	0.43
usefulness	0.28
custom	0.34
security	0.13

*Corpus used for the query “usability+chat+messaging”. Sources at https://git.io/fNij6

Resuts

Words found to identify sentiment in Issues

Adverbs	Modal Verbs	Verbs	Plural Nouns	SentiStrenght (nouns and adj.)
not	should	reclaim	challenges	challenges
urgently	will	affect	effects	care
very	can	deal		lack
however	cannot	face		jail
potentially	would	agree		cumbersome
maybe	could	interrupt		poor
manually	may	improve		worthwhile
				security
				unpopular

Not identified by **SentiStrength**

Verbs/nouns identified by **SentiStrength**

We could have identified if not filtered adjectives with suffixes “ity” or “ness”

Conclusion

- Finding chunks of text, where qualities are mentioned together presents the opportunity of looking for “sentiment” in this context.

- We envisage the possibility of speeding up the elicitation of possible conflicts among NFRs early on, as requirements engineers are acquainted with the domain.

References

1. M. Thelwall. “The Heart and soul of the web? Sentiment strength detection in the social web with SentiStrength”. In Cyberemotions 2017 (pp. 119-134). Springer, Cham.
2. Luiz M. Cysneiros, “Evaluating the Effectiveness of Using Catalogs to Elicit Non-Functional Requirements.” 2007. In Workshop on Requirements Engineering WER. pp. 107-115.
3. R. Oliveira. A Semi-automated Method for Elicitation of Web Accessibility Requirements. Master’s Thesis. 2014. DIMAp (UFRN), Natal, Brasil.
4. ER-PUC-Rio. Transparency Catalog. 2018. Available at http://transparencia.inf.puc-rio.br/wiki/index.php/Catálogo_Transparência. Last Access: 6/16/2018
5. All resources about this paper: https://github.com/nitanilla/Usability-Related-Qualities-through-Sentiment-Analysis

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